

Remarks

Applicants respectfully request reconsideration of the present patent application in view of the above amendments and following remarks. Claims 1 and 15 have been amended. No claims have been added or cancelled. Therefore, claims 1-19 are pending in the present application.

Claims 1-5 have been rejected under 35 U.S.C. § 101 because the claimed subject matter is directed to non-statutory subject matter. In particular, the examiner stated that the claims are directed to the calculation of a mathematical formula and provides no practical application of the abstract idea. Claim 1 has been amended so that it is now directed to a method for pre-heating a hydrocarbon catalytic reformer. In view of the amendment to claim 1, Applicants request that the rejection of claims 1-5 be withdrawn.

Claims 15-19 have been rejected under 35 U.S.C. § 101 because the claimed subject matter is directed to wireless transmissions as an embodiment of the computer readable medium. Claim 15 has been amended to state that the computer readable instructions are of a wired media type. In view of the amendment to claim 15, Applicants request that the rejection of claims 15-19 be withdrawn.

Claims 6 and 7 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2002/0071974 to Yamaoka ("the Yamaoka reference").

Independent claim 6 is directed to a catalytic hydrocarbon reformer for making reformat comprising an electronic control module for controlling the flow of hydrocarbon fuel and air into the reformer. The electronic control module is

programmed with a software construct for determining a fuel combustion time interval for pre-heating the hydrocarbon catalytic reformer from a starting temperature to a minimum reforming temperature.

The Yamaoka reference does not teach or suggest a catalytic hydrocarbon reformer including an electronic control module that is programmed with a software construct for determining a fuel combustion time interval for pre-heating the hydrocarbon catalytic reformer from a starting temperature to a minimum reforming temperature as recited in claim 6. In rejecting claim 6, the Examiner pointed to the abstract of the Yamaoka reference. See *Office Action*, pg. 3. In the abstract, the Yamaoka reference states that a fuel reforming apparatus includes a heating device that heats raw fuel to a target temperature, wherein the target temperature is based upon the quantity of raw fuel being supplied to the heating device. See *Yamaoka*, Abstract, ¶ [0010]. However, based upon this section of the Yamaoka reference, there is nothing that discloses that a starting temperature of the reformer and a minimum reforming temperature for the reformer are used in a software construct to determine a fuel combustion time interval for the heating device. Moreover, a starting temperature of the reformer and a minimum reforming temperature of the reformer are not even mentioned in the abstract of the Yamaoka reference. For at least this reason, Applicants submit that a prima facie case of anticipation has not been established and request that the rejection of claim 6 be withdrawn. As claim 7 depends from claim 6, it is requested that the rejection of claim 7 be withdrawn as well.

Claims 1-5 and 10-19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0101713 to Dalla Betta ("the Dalla reference") in view of the Yamaoka reference.

Amended independent claim 1 is directed to a method for pre-heating a hydrocarbon catalytic reformer from a starting temperature to a minimum reforming temperature utilizing a electronic control module, comprising the steps of: a) selecting a fuel type to be combusted; b) determining the latent heat of combustion of the selected fuel type; c) selecting a flow rate of the combustion fuel; d) determining the heat capacity of the catalyst to be heated in the catalytic reformer; e) determining a mass of the reformer to be heated; f) determining a starting temperature of the catalytic reformer; g) utilizing a software construct to produce the fuel combustion time interval, wherein the construct utilizes the latent heat of combustion, the selected combustion fuel flow rate, the heat capacity of the catalyst, the mass to be heated, and the starting temperature; and h) pre-heating the hydrocarbon catalytic reformer using a combustor for the fuel combustion time interval so that the hydrocarbon catalytic reformer reaches the minimum reforming temperature.

The combination of the Dalla reference and the Yamaoka reference do not teach or suggest a method for pre-heating a hydrocarbon catalytic reformer comprising the steps of: f) determining a starting temperature of the catalytic reformer; and g) utilizing a software construct to produce the fuel combustion time interval as recited in amended claim 1. In rejecting claim 1, the Examiner identified paragraph [0095] of the Dalla reference as disclosing the step of determining a

starting temperature of the catalytic reformer. *See Office Action*, pg. 4. However, paragraph [0095] of the Dalla reference does not at all discuss the starting temperature of the reformer, but instead identifies the temperature ($T_{FP, in}$) of the exhaust gas at the inlet of the fuel processor (i.e., reformer). Furthermore, the Examiner identifies paragraph [0101] of the Dalla reference to state that the system constants (e.g., flow rate, catalyst mass, etc.) are used in calculating the length of time for fuel processing. *See Office Action*, pg. 4. However, the fuel processing referred to in paragraph [0101] is not related to the length of time that the fuel is combusted to heat the reformer (i.e., fuel combustion time interval), but is instead related to the length of time the fuel processor (reformer) is operated in a "rich mode," which relates to a reforming mode. *See Specification*, pg. 1, lines 26-28 (stating that a reformer operates in a fuel rich condition and a combustor operates in a lean fuel to air ratio). Therefore, the Dalla reference does not disclose a method of pre-heating using a fuel combustion time interval. Likewise, for at least the same reasons that were set forth above with respect to claim 6, the Yamaoka reference also does not teach or suggest method of pre-heating a reformer using a fuel combustion time interval.

For at least the foregoing reasons, Applicants submit that a prima facie case of obviousness has not been established and request that the rejection of claim 1 be withdrawn. As claims 2-5 depend from claim 1, these claims are not taught or suggested by the combination of the Dalla and Yamaoka references for at least the same reasons that were set forth with respect to claim 1.

Since claims 10-19 also include limitations that are similar to those that were argued above with respect to claim 1, Applicants submit that claims 10-19 are not taught or suggested by the combination of the Dalla and Yamaoka references for at least the same reasons that were set forth with respect to claim 1. It is requested that the rejection of claims 10-19 be withdrawn.

Claim 8 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yamaoka reference in view of the Dalla reference. Since claim 8 depends from claim 6, Applicants submit that the Yamaoka reference fails to teach or suggest all of the limitations included therein for at least the same reasons that were set forth above with respect to claim 6. The Dalla reference also fails to teach or suggest the limitation that was lacking in the Yamaoka reference. It is therefore requested that the rejection of claim 8 be withdrawn.

Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yamaoka reference in view of U.S. Patent Publication No. 2002/0150532 to Grieve ("the Grieve reference"). Since claim 8 depends from claim 6, Applicants submit that the Yamaoka reference fails to teach or suggest all of the limitations included therein for at least the same reasons that were set forth above with respect to claim 6. The Grieve reference also fails to teach or suggest the limitation that was lacking in the Yamaoka reference. It is therefore requested that the rejection of claim 8 be withdrawn.

Conclusion

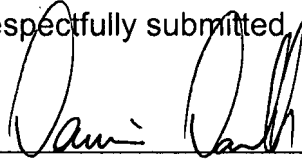
In light of the foregoing, Applicants submit that claims 1-19 are in condition for allowance and such allowance is respectfully requested. Should the Examiner feel

that any unresolved issues remain in this case, the undersigned may be contacted at the telephone number listed below to arrange for an issue resolving conference.

Applicants do not believe that any fee is due at this time. However, the Commissioner is hereby authorized to charge any fees that may have been overlooked to Deposit Account No. 10-0223.

Dated: 11/9/07

Respectfully submitted,



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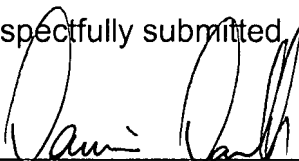
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